Integrator / Digitizer Test Card

Purpose of the Test Card

- Evaluate the performance of the proposed integration, digitization and data processing methods.
- Evaluate the integrator, digitizer and other components and circuits in a realistic context.
- Discover sources of noise and EMI both on and off the circuit card.
- Experiment with techniques to improve the signal to noise ratio of the readout.

More →

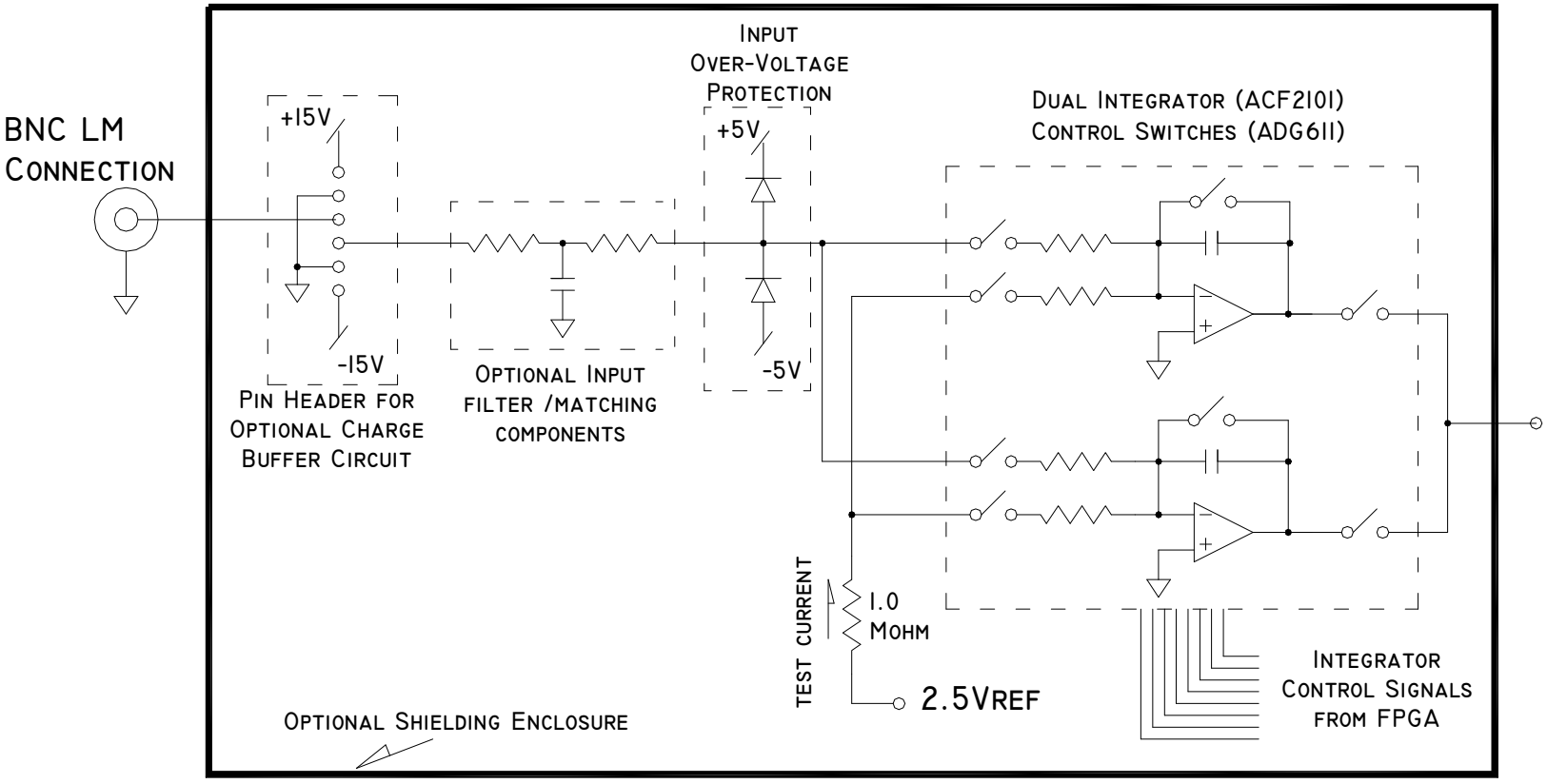
Integrator / Digitizer Test Card

Purpose of the Test Card

- Explore the impact of cabling on our measurement.
- Measure the actual power requirements.
- Work through the procurement, assembly and other mechanical details of the card.
- Determine which features are unnecessary and which may need to be improved or added.

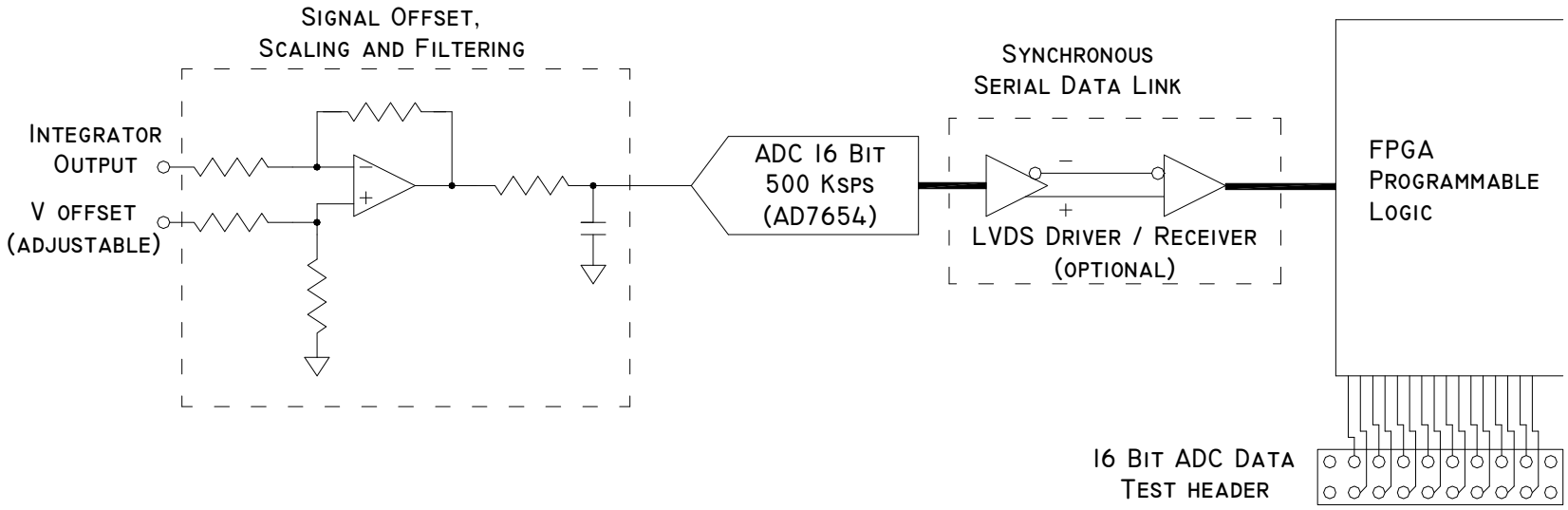
Integrator / Digitizer Test Card

Integrator Input Section



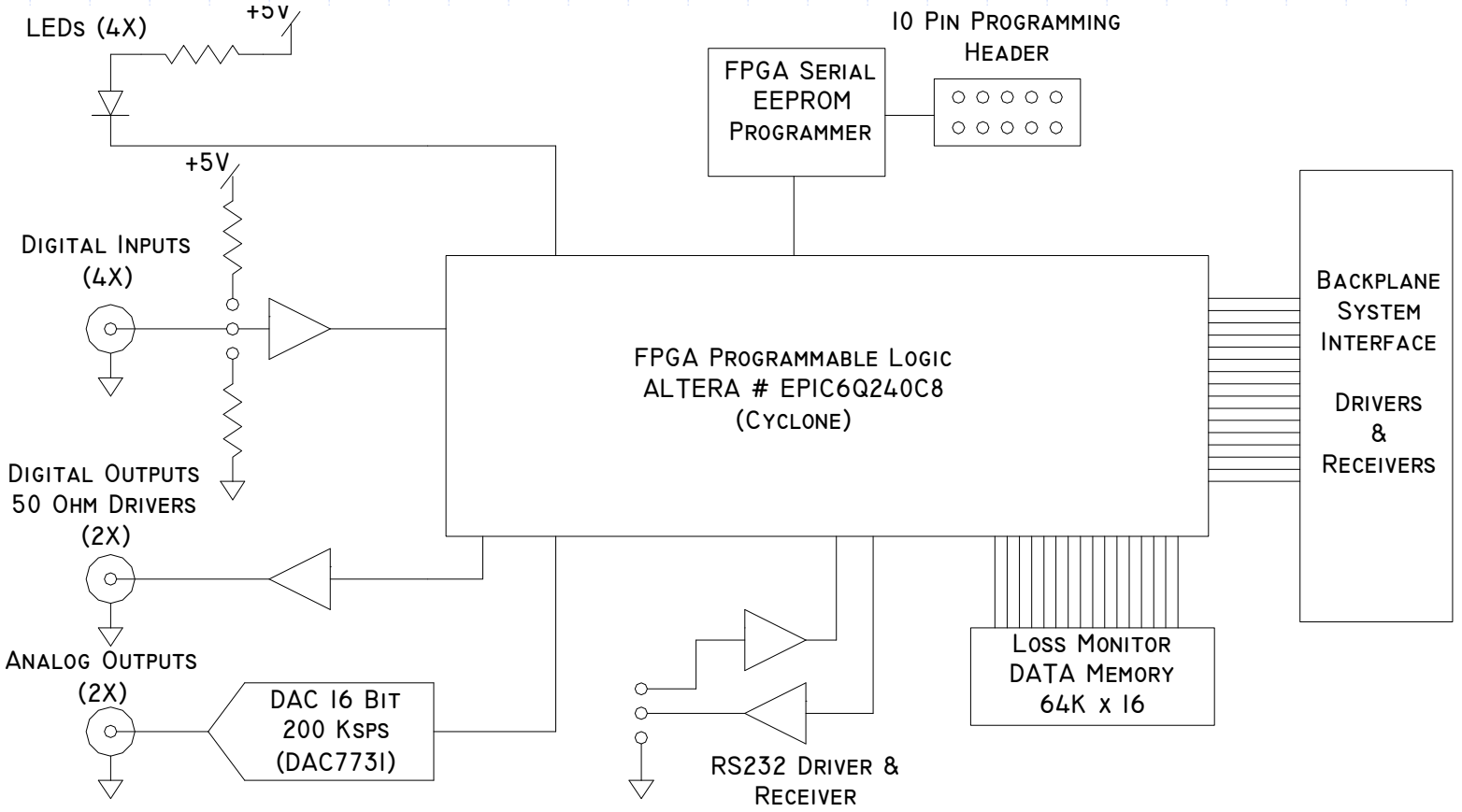
Integrator / Digitizer Test Card

Digitizer Section



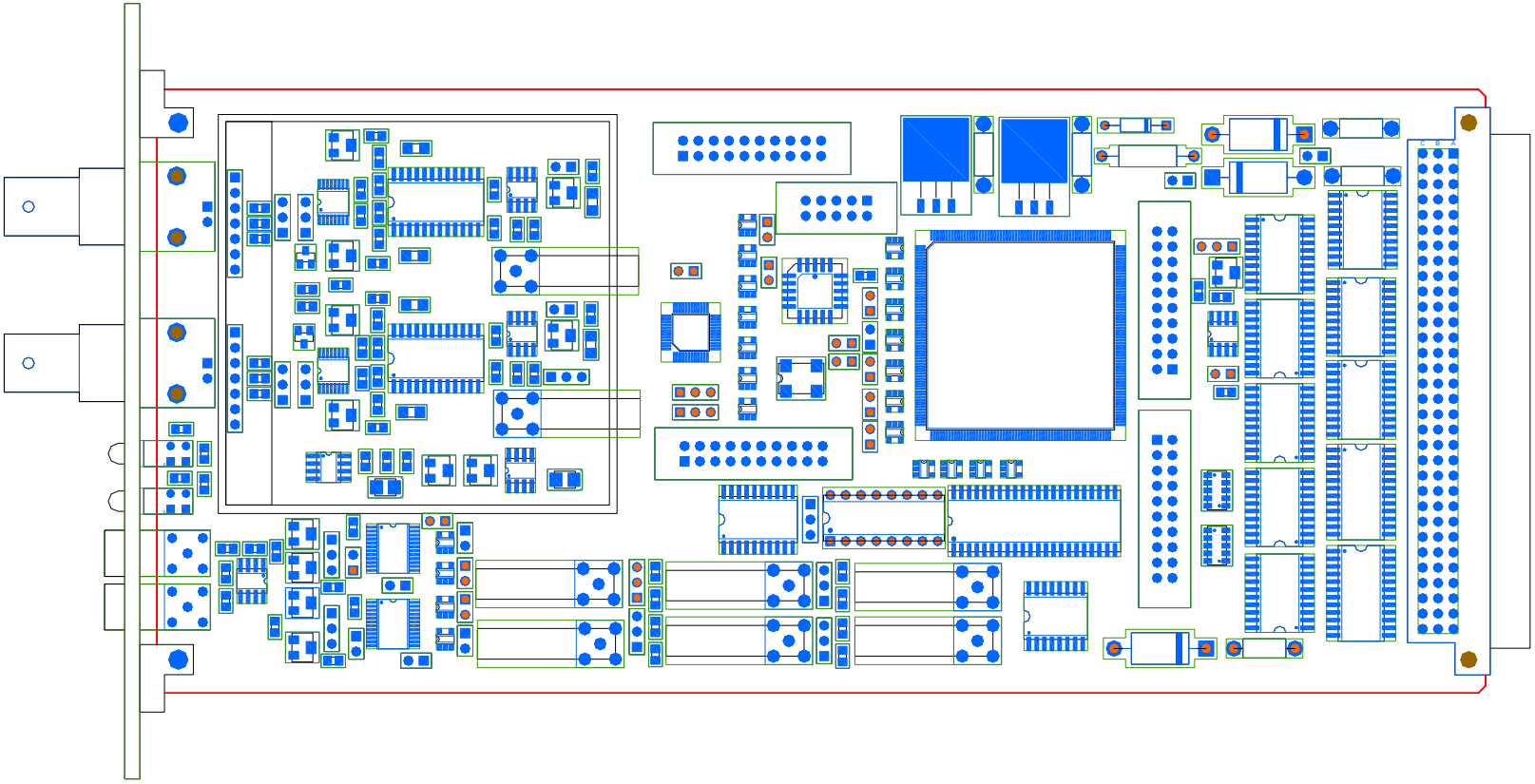
Integrator / Digitizer Test Card

Digital Section



Integrator / Digitizer Test Card

PCB Layout



Integrator / Digitizer Test Card

Candidate Test Signal Sources

- Precision DC voltage source in series with a large value resistor.
- Pulse or other arbitrary signals generated by on card FPGA and DAC in series with a large value resistor.
- Precision charge currents produced using a Keithley 236 Source Measurement Unit.
- Actual charge currents from Loss Monitors in the Tevatron or Booster.

Integrator / Digitizer Test Card

Acquiring and Evaluating Test Data

- The PPD ASIC Test Stand will connect to the 16 Bit ADC Data Test Header, and process and display results using Visual Basic routines.
- Tests in the field could use the RS-232 serial port implemented in the FPGA.
- Later test will use the proposed backplane interface to collect data.